REMARKS

The application as filed included claims 1-9. The Office action mailed June 6, 2002 required restriction to the invention of claims 1-4 or the invention of claims 5-9. Provisional election previously was made without traverse to prosecute the invention of claims 5-9. This election is affirmed, and claims 1-4 are cancelled.

The Office action states that the oath or declaration is defective because it does not include the signature of the second inventor.

Declarations were filed in response to a Notice to File Missing Parts of Application dated August 13, 2001. The response to the Notice to File Missing Parts of Application included two separate executed Declaration and Power of Attorney forms. One of the two separate executed Declaration and Power of Attorneys is executed by Ho Yin Tang. A second of the two separate executed Declaration and Power of Attorneys is executed by Sidharta Wiryana. The two separately executed Declaration and Power of Attorney forms were provided as indicated in the Letter in response to Notice to File Missing Parts of Application dated January 4, 2002. In addition, the return receipt postcard submitted with the Letter in Response to Notice to File Missing Parts of Application indicates that two separate executed Declaration and Power of Attorneys were submitted. Copies of both of the Declarations are included herewith, along with a copy of the Letter in response to Notice to File Missing Parts of Application dated January 4, 2002.

The specification is indicated as not containing the filing date of the cross-referenced provisional U.S. application at page 1, lines 5-10. The specification is now amended to indicate the filing date of the cross-reference provisional application.

Claim 8 is objected to as the word "approximate" should be "approximately". Claim 8 is now cancelled, and the rejection is therefore moot.

Claim 7 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Office action states that it is unclear from

the language of the claim how the "plasticizer comprises approximately tem [sic] percent of the polymer compound." Claim 7 is now cancelled and the objection is therefore moot. However, similar language is used in other claims, and those claims now indicate percent composition by volume, in accordance with the application as filed.

With regards to rejections based on the prior art, claims 5-6 and 8-9 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 5,945,034 (Handa). In addition, claims 5-9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,775,778 (van Konynenburg) in view of Handa. Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over van Konynenburg in view of Handa and further in view of U.S. Patent No. 5,993,698 (Frentzel). Claims 5-6 and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Frentzel in view of Handa, and claims 7 and 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Frentzel in view of Handa and further in view of van Konynenburg.

Independent claim 5, as amended, specifies a positive coefficient device adapted for use in circuit protection, the device comprising a first laminar foil; a second laminar foil; and a polymeric compound between the first laminar foil and the second laminar foil, the polymeric compound comprising a polymer, a plasticizer between 5 percent and 15 percent by volume of the polymeric compound, and carbon black; with the positive coefficient device having low room temperature resitivities and a switching temperature approximate 70 degrees Celsius.

Handa is directed to a positive temperature coefficient thermistor comprising a thermoplastic polymer matrix, a low-molecular organic compound, and conductive particles. (Handa, abstract). In the device of Handa examples are provided in which the conductive particles are nickel (see Handa, Table 1). The use of carbon black as a conductive particle in comparative Example 1. The temperature verses resistance curve for comparative Example 1 are shown in FIG. 7 of Handa (Handa, col. 8, lines 41-42). As stated in Handa, "this comparative thermistor element is remarkably lacking in practicality".

(Handa, col. 8, lines 49-50). Thus, Handa does not seem to disclose or suggest a device such as claimed in claim 5.

Von Konynenburg discusses that "it is possible by the use of plasticizers or other internal viscosity reducers to greatly reduce or even eliminate the relaxation anneal and in many circumstances to reduce the structuring anneal as well...plasticising additives are particularly useful when peroxide or any of the other thermally activated crosslinking processes are used, as it is not possible conveniently to structure anneal the composition." (von Konynenburg, col. 10, lines 53-67). From the foregoing, it does not appear that von Konynenburg explicitly suggests the use of a plasticizer between 5 percent and 15 percent by volume of the polymeric compound as specified in claim 5.

Frentzel is directed to a PTC resistor composition. Frentzel appears to discuss a PTC composition which the conductive material is selected from the group consisting of silver, graphite, graphite/carbon, nickel, copper, silver coated copper, and aluminum. Given the vagaries of effects of changing compositions in PTC devices, it is not clear that the teachings of Frentzel, von Konynenburg and Handa would be combined. Moreover, Frentzel and Handa appear to be focused on the use of conductive particles other than carbon blacks.

Accordingly, claim 5 is allowable in view of Handa, von Konynenburg and Frentzel, as are dependent claims 6 and 29-32.

Claim 10 specifies a positive coefficient device adapted for use in circuit protection, the device comprising a first laminar foil; a second laminar foil; and a polymeric compound between the first laminar foil and the second laminar foil, the polymeric compound comprising a polymer, a plasticizer comprising between five percent to fifteen percent by volume of the polymeric compound, and two different carbon blacks.

Von Konynenburg is directed to PTC compositions and devices comprising them. The Office action states that since the relevant characteristics of many different types of carbon black are listed in

the reference (Table 1) and since many of the carbon blacks have similar properties, (e.g. Types 1 and 2 in the Table), it would have been obvious to one skilled in the art that a mixture of two similar suitable carbon blacks would also produce a suitable PTC composition. A review of von Konynenburg, however, does not appear to suggest the use of two different blacks. In addition, it is not clear from von Konynenburg why the use of two different blacks may be beneficial. In short, von Konynenburg does not disclose the use of two different carbon blacks, and does not appear to provide any reason for doing so.

Claim 9, as amended, specifies a method of forming a low switching temperature polymer positive temperature coefficient device suitable for circuit protection use, the method comprising compounding semi-crystalline polymer, plasticizer, and carbon black to form a polymeric compound, the plasticizer comprising approximately ten percent by volume of the polymeric compound; pressing the polymeric compound between nodular foil; and cross-linking the polymeric compound.

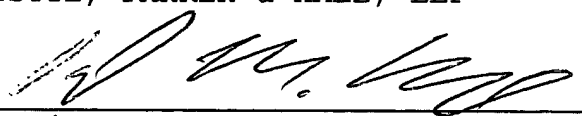
Applicant's representative is unable to locate disclosure or teaching of such a method in the three references discussed above. In view of the general discussion of the three references above, and the references themselves, it appears that claim 9 is allowable.

Accordingly, the claims are now believed allowable and allowance of same is respectfully requested.

Attached hereto is a marked-up version of the changes made to the above-identified application by the current amendment. The attached page is captioned "**Version with markings to show changes made**."

Respectfully submitted,

CHRISTIE, PARKER & HALE, LLP

By 

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

Page 1, line 7, please replace the paragraph following CROSS-REFERENCE TO RELATED APPLICATION with the following new paragraph:

This application claims the benefit of the filing date of U.S. provisional patent application number 60/213,357, entitled 70 Degree Temperature Switch PPTC, filed June 20, 2000, the disclosure of which is incorporated by reference.

In the Claims:

Claims 5 and 9 have been amended as follows:

5. (Amended) A positive coefficient device adapted for use in circuit protection, the device comprising:

a first laminar foil;

a second laminar foil; and

a polymeric compound between the first laminar foil and the second laminar foil, the polymeric compound comprising a polymer, a plasticizer between 5%-15% by volume of the polymeric compound, and carbon black; [~~and conductive particles.~~]

with the positive coefficient device having low room temperature resitivities and a switching temperature approximate 70 degrees Celsius.

7. CANCELLED.

8. CANCELLED.

9. (Amended) A method of forming a low switching temperature polymeric positive temperature coefficient device suitable for circuit protection use, the method comprising:

compounding semi-crystalline polymer, plasticizer, and carbon black, to form a polymeric compound, the plasticizer comprising approximately 10% by volume of the polymeric compound;

pressing the polymeric compound between nodular foil; and

crosslinking the polymeric compound.